

ABSTRACT

A low-cost, portable, strap-down, navigation system including: an Inertial Navigation System (INS); a GPS receiver; and a 3-Axis Magnetometer (MAG). A microprocessor controls and filters the data from the INS, GPS and MAG. In a preferred embodiment the system provides an indication of: True Heading; 3-D Position; 3-D Velocity; 3-D Acceleration; 3-D Attitude; and 3-D Angular Rate. A filter weighs the trustworthiness of each sensor, favoring the GPS and MAG sensors for relatively low rate movements and steady state conditions and the INS sensors for transient movements.

FINAL BRIEF